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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): 915-003.007

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]

on May 15, 2006

Signature: Lissette Ramos

Typed or printed name: Lissette Ramos

Application Number	Filed
10/070,410	March 6, 2002

First Named Inventor: Hans AHNLUND et al.

Art Unit	Examiner
2617	Huy Q. PHAN

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
- ☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- ☐ attorney or agent of record. Registration number _____
- ☑ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34: 58,051

Keith R. Obert
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May 15, 2006
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☑ *Total of 3 forms are submitted.

PATENT
Attorney Docket No. 915-003.007

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of:

Hans AHNLUND et al.	:	Confirmation No.: **6921**
Application Serial No.: **10/070,410**	:	Group/Art Unit: **2617**
Filing Date: **March 6, 2002**	:	Examiner: **Huy Q. PHAN**

Title: ***Method for Quality Measurement in a Mobile Telecommunications System***

Commissioner of Patents
Mail Stop AF
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Sir:

This Request for Review is filed in response to the final Official Action of December 15, 2005.

I hereby certify that this communication is being deposited with the United States Postal Service today, May 15, 2006, in an envelope with sufficient postage as first-class mail addressed to the Commissioner of Patents, Mail Stop AF P.O. Box 1450, Alexandria, VA 22313-1450.

Lissette Ramos

REMARKS

Claims 1-5 and 7-18 are pending in the application, and all claims are rejected. Applicant respectfully requests review of the final rejections to the claims in light of the following discussion. The Office has committed clear error in rejecting the claims because the cited references, alone or in combination, fail to teach or suggest all the limitations recited in the claims. See MPEP § 2143.03. This Request for Review is submitted along with a Notice of Appeal.

Claims 1-5, 7, 8, 11 and 15 are rejected under 35 U.S.C. § 103(a) as unpatentable over Nakamura et al. (U.S. Patent No. 6,269,087) in view of Chheda et al. (U.S. Patent No. 6,151,512). Claims 9, 10 and 16 are rejected under 35 U.S.C. § 103(a) as unpatentable over Nakamura in view of Chheda, in further view of Trompower et al. (U.S. Patent No. 6,138,019). Claims 12-14, 17 and 18 are rejected under 35 U.S.C. § 103(a) as unpatentable over Nakamura in view of Chheda, in further view of Rozanski et al. (U.S. Patent No. 5,493,563).

When a mobile station moves from one cell site location to another in a mobile communications network, it may be necessary for the mobile station to switch its communications to another base station. This switch of communications from one base station to another base station in a mobile communications network is known as a handover. Generally, whether a handover should occur is decided based on comparisons made between principal carrier frequencies of different adjacent cells. However, it is possible that when a mobile station is handed over to an adjacent cell whose principal carrier frequency was determined to be the strongest, the mobile station is handed over to another frequency of that cell that has so much interference that the mobile station is unable to communicate, and the call is dropped. Therefore, the present invention seeks to determine more accurately the quality of service that can be expected on a new carrier frequency to which a mobile station may be handed over. In order to accomplish this claim 1 recites a mobile station determining an estimate of the level of interference with signals on each of at least two communication channels for each of at least two cell site units. Applicant respectfully submits that Nakamura in view of Chheda fail to teach or suggest this limitation recited by claim 1.

Nakamura discloses a handover type judgement scheme for a Code Division Multiple Access (CDMA) type mobile communication system. Nakamura is primarily concerned with determining if a handover[1] should be made, and if so, whether the handover should be the same frequency soft

[1] A handover occurs when a mobile station changes its communication from a currently communicating base station to another base station.

handover[2], a different frequency soft handover, or a hard handover[3]. The CDMA system operations are mainly upon the same frequency band, and different channels are assigned different codes which enable them to retrieve the modulated signals from the background interference created from the other users' operating over the same frequency band. In Nakamura, a handover is dependent on reception levels measured at the mobile station. See Nakamura Figure 3. Nakamura determines when a handover should occur based on the difference between the receiving level of the perch channel[4] from each nearby cell with the receiving level of the perch channel of a currently located cell. See Nakamura column 1, lines 29-34. When the difference between the received signal strength between the first and second cells reaches a specific value, a particular type of handover is selected. However, the handover is not determined on the basis of at least the estimates of the level of interference with signals on each of the at least two communication channels for each of the two or more cell site units, as recited in claim 1.

Furthermore, Nakamura only discloses measuring the interference level from a single cell currently being used for communication with a mobile station, and comparing the measured interference value with a prescribed threshold value. See Nakamura column 6, lines 14-19. In contrast, claim 1 recites the mobile station determining an estimate of the level of interference with signals on each of that at least two communication channels for each of the two or more cell site units. Therefore, as recited in claim 1, the mobile station determines the level of interference for at least four communication channels. In Nakamura, the mobile station only measures the interference level for one frequency bandwidth, the currently used frequency bandwidth. See Nakamura column 6, lines 14-17; see also column 4, lines 5-11 (the mobile station measures an interference receiving level of a frequency bandwidth by which the mobile station is currently communicating with base stations) (emphasis added). The mobile station judges, based on the measured interference level, whether it is possible to carry out a particular type of handover. However, it is still possible that if a handover is carried out, the mobile station will be handed over to a frequency bandwidth that has substantial interference, because the mobile station only measured the interference level of the frequency

[2] A soft handover occurs when the mobile station communicates simultaneously with two or more base stations in order to select the best signal quality until the handoff is complete.
[3] A hard handover occurs when all the radio links used for communication with the mobile station are removed before new radio links are established.
[4] The "perch channel" is the principal carrier frequency of a base station, and is used by mobile stations to compare the transmission levels of adjacent base stations.

bandwidth on which it was currently communicating, and did not measure the interference level for any other frequency bandwidths, as the method of claim 1 recites.

On page 3 of the final Office Action of December 15, 2005, as well as the Advisory Action of April 6, 2006 the Office cites column 5, line 59 through column 6, line 29 of Nakamura as disclosing a mobile station determining an estimate of the level of interference. However, at the cited portions of Nakamura it is the base station, and not the mobile station that measures the interference receiving level of each frequency bandwidth. Nakamura only discloses the mobile station measuring the interference level for a single frequency bandwidth, or measuring the interference level for each frequency bandwidth implemented at that base station. In addition, the base station only measures the interference levels for its own frequency bandwidths, and does not measure the interference levels for other base stations' frequency bandwidths. Therefore, Nakamura fails to disclose or suggest the mobile station determining an estimate of the level of interference with signals on each of the at least two communication channels for each of said two or more cell site units, as recited in claim 1.

Furthermore, Nakamura fails to disclose or suggest the mobile station receiving signals for each of said two or more cell site units on each of the at least two communication channels, as recited in claim 1. In Nakamura, the "uplink" and "downlink" channels are not both received by the mobile station, because the "uplink" channel is received by the base station. See Nakamura column 6, lines 34-36 (each base station measures the uplink radio channel state for each cell/sector at the measurement unit). The uplink channel provides communication from the mobile station to the base station, and therefore it is impossible for the mobile station to receive communications on this channel.

On page 3 of the final Office Action, the Office states that Nakamura fails to teach each cell site unit capable of communicating by radio with the mobile station on at least two communication channels having different frequencies, and relies on column 9, lines 37-42 Chheda for this teaching. Column 9, lines 37-42 of Chheda describe "a forward link between the base station and the mobile user and a reverse link between the mobile user and the base station use different frequency bands to operate." Thus Chheda teaches the separation of frequencies for the forward link between the mobile user and the base station, i.e. "downlink," and the reverse link between the mobile user and the base station, i.e. "uplink." As stated above with respect to Nakamura, the uplink and downlink are not both received by the mobile user. Any mobile station attempting to do so would suffer from interference between the transmitter of the mobile station transmitting on the uplink frequency and the receiver of the mobile station receiving on the uplink frequency, something Chheda explicitly wishes to avoid happening.

Furthermore, Chheda also fails to disclose or suggest receiving and determining an estimate of the level of interference of signals on each of at least two communication channels from each cell site unit. Instead, Chheda only discloses implementing multiple base stations in a single cell of a communications network in order to meet increased service demands. See Chheda column 3, lines 19-43. Therefore, even if Chheda is combined with Nakamura the combination fails to disclose or suggest all the limitations recited by claim 1.

Therefore, the cited references, alone or in combination, fail to disclose or suggest all the limitations of claim 1, and as a result claim 1 is patentable. See MPEP § 706.02(j).

Independent claims 11 and 16 all contain similar limitations to independent claim 1 that a handover is determined on the basis of at least the estimates of the level of interference with signals on each of the at least two communication channel for each of the at least two cell site units. Therefore, for at least the reasons discussed above in relation to claim 1, independent claims 11 and 16 are patentable over the cited references.

Furthermore, dependent claims 2-5, 7-10, 12-14 and 17 and 18 all depend directly or indirectly from an independent claim, and are patentable at least in view of their dependencies.

Conclusion

In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance, and such action is earnestly solicited. The Commissioner is hereby authorized to charge to deposit account 23-0442 any fee deficiency required to submit this paper.

Respectfully submitted,

Dated: May 15, 2006

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